DAPHNIA HEART BEAT AND CELL COMMUNICATION

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Background Info

- **Neurons:** A specialized cell transmitting nerve impulses; a nerve cell
- **Neurotransmitters:** A chemical substance that is released at the end of a nerve fiber by the arrival of a nerve impulse and diffuses through the synapses and junctions of neurons
- **Ligands:** A molecule that binds to another molecule
- **Binding Sites:** Site where ligands bind

Could you name some everyday products that contain neurotransmitters?

- Coffee
- Eggs
- Syrups

How do people react to these products?

Coffee

- Keeps people awake
- Caffeine energize people to go on with their day

Eggs

- Helps memory, concentration, and focus

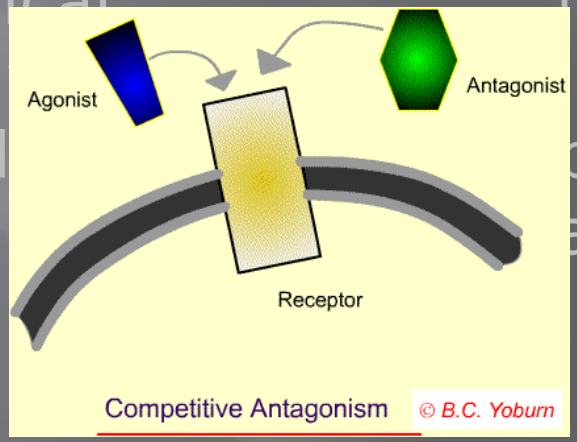
Syrup

- Too much could lead to heart diseases

Agonist vs Antagonist

AGONIST

- A substance that initiates a physiological response combined receptor

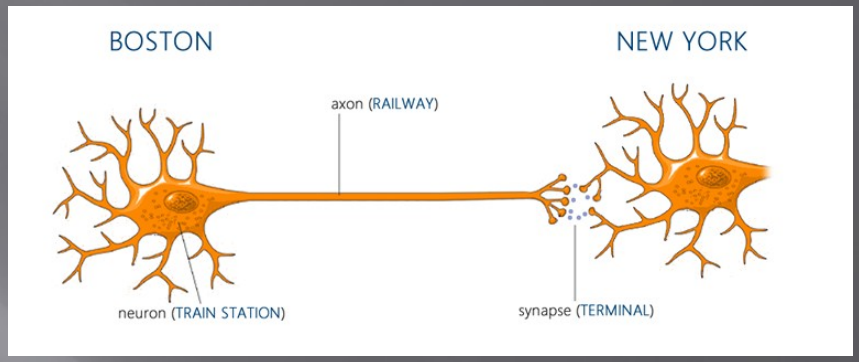


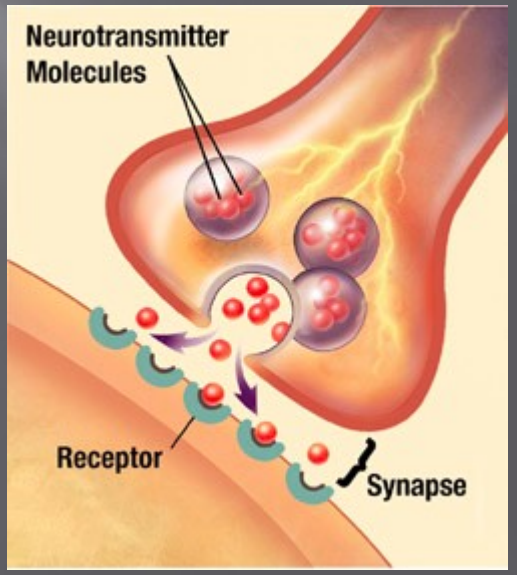
ANTAGONIST

- A substance that interferes with or inhibits the physiological action of another

Why is it important?

- Cell communication in multi-cellular organisms is what allows us to perform everyday tasks
- Our brain contains a variety of chemicals that could activate different physiological effects when bound to a neuron





Our Friend, Daphnia

- This microcrustacean has been subject to many biological experiments for over a century
- Daphnia are found in abundance on the surface of water
- Daphnia are transparent microorganisms, which allows us to observe their physiology under a microscope

- https://www.youtube.com/watch?v=MJCnZ0pB3q4

Daphnia Heart Rate

- We will observe how Daphnia Heart Rate will be effect when the specimen is immersed in drug solutions that contain different neurotransmitters
- Make sure to use a new Daphnia specimen for each drug and to record your data onto your worksheet

Career Connection

ENTOMOLOGIST

NEUROLOGIST